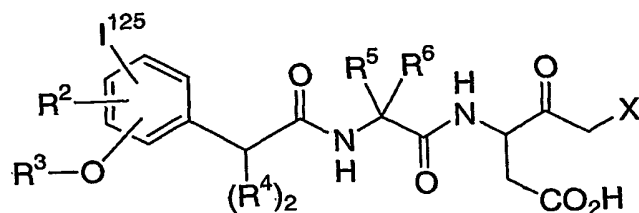


WHAT IS CLAIMED IS:

1. A compound represented by Formula I:



I

or a salt, ester or hydrate thereof, wherein:

X is halo, or

X is -O-W-Z, wherein W is a bond, -CH₂-, -C(O)- or -C(O)CH₂-;

Z is selected from the group consisting of:

- (1) H,
- (2) C₁₋₁₁alkyl,
- (3) C₃₋₁₁cycloalkyl or a benzofused analog thereof,
- (4) phenyl or naphthyl, and
- (5) HET¹, wherein HET¹ represents a 5- to 10-membered mono- or bicyclic,

aromatic or non-aromatic ring, or a benzofused analog thereof, containing 1-3 heteroatoms selected from O, S and N,

groups (2), (3) and (5) above are optionally substituted with 1-2 oxo groups,

groups (2) – (5) above are further optionally substituted with 1-3 substituents independently selected from the group consisting of:

- (a) halo
- (b) nitro,
- (c) hydroxy,
- (d) C₁₋₄alkyl,

- (e) C₁₋₄alkoxy,
- (f) C₁₋₄alkylthio,
- (g) C₃₋₆cycloalkyl,
- (h) phenyl or naphthyl,
- (i) phenoxy,
- (j) benzyl,
- (k) benzyloxy, and
- (l) a 5 or 6-membered aromatic or non-aromatic ring containing from

1-3 heteroatoms selected from O, S and N,

groups (d)-(g) above are optionally substituted with oxo and 1-3 substituents independently selected from halo and C₁₋₄alkoxy,

groups (h) – (l) above are optionally substituted with 1-3 substituents independently selected from halo and C₁₋₄alkyl, and

group (4) is further optionally substituted up to its maximum with halo groups;

R² is selected from the group consisting of:

- (1) H,
- (2) halo,
- (3) hydroxy,
- (4) nitro,
- (5) cyano,
- (6) C₁₋₁₀alkyl, C₃₋₁₀cycloalkyl, C₁₋₁₀alkoxy, –S(O)₀₋₂C₁₋₁₀alkyl or –

NHC₁₋₁₀alkyl, each optionally substituted with 1-2 oxo or carboxy groups and further optionally substituted with 1-3 substituents independently selected from the group consisting of:

- (a) halo,
- (b) hydroxy
- (c) cyano,
- (d) C₁₋₄alkoxy,
- (e) –NHR⁷, wherein R⁷ is independently H or C₁₋₅alkyl,
- (f) –S(O)₀₋₂C₁₋₄alkyl, and

(g) HET², wherein HET² represents a 5- to 7-membered aromatic or non-aromatic ring containing 1-4 heteroatoms selected from O, S and NR⁸, wherein R⁸ is independently H or C₁₋₅alkyl, said HET² being optionally substituted with oxo and further optionally substituted with 1-2 substituents independently selected from halo and C₁₋₄alkyl, said C₁₋₄alkyl being optionally substituted with 1-3 halo groups,

(7) phenoxy or -S(O)₀₋₂phenyl,

(8) benzyloxy or -S(O)₀₋₂benzyl,

(9) benzoyl,

(10) phenyl or naphthyl,

(11) -O-HET² or -S-HET², said HET² being optionally substituted with oxo

and further optionally substituted as defined below, and

(12) HET³, wherein HET³ is a 5- or 6-membered aromatic or non-aromatic ring, or a benzofused analog thereof, containing from 1 to 4 heteroatoms selected from O, S and N, said HET³ being optionally substituted with oxo and further optionally substituted as defined below,

groups (7) - (12) above are each optionally substituted with 1-2 substituents independently selected from the group consisting of: halo, cyano, C₁₋₄alkyl and C₁₋₄alkoxy, said C₁₋₄alkyl and C₁₋₄alkoxy being optionally substituted with 1-3 halo groups;

R³ is phenyl or C₁₋₁₀alkyl, said C₁₋₁₀alkyl optionally substituted with 1-2 oxo or carboxy groups and further optionally substituted with 1-3 substituents independently selected from the group consisting of:

(a) halo,

(b) hydroxy

(c) cyano,

(d) C₁₋₄alkoxy,

(e) -NHR⁷, wherein R⁷ is independently H or C₁₋₅alkyl,

(f) -S(O)₀₋₂C₁₋₄alkyl, and

(g) HET², wherein HET² represents a 5- to 7-membered aromatic or non-aromatic ring containing 1-4 heteroatoms selected from O, S and NR⁸, wherein R⁸ is independently H or C₁₋₅alkyl, said HET² being optionally substituted with oxo and further optionally substituted with 1-2 substituents independently selected from halo or C₁₋₄alkyl, said C₁₋₄alkyl being optionally substituted with 1-3 halo groups,

each R⁴ is independently selected from the group consisting of: H, halo, hydroxy, C₁₋₆alkyl and C₁₋₄alkoxy, said C₁₋₆alkyl and C₁₋₄alkoxy being optionally substituted with oxo and further optionally substituted with 1-3 halo groups; and

R⁵ is selected from the group consisting of: H, phenyl, naphthyl, C₁₋₆alkyl optionally substituted with OR¹² and 1-3 halo groups, and C₅₋₇ cycloalkyl optionally containing one heteroatom selected from O, S and NR¹³,

wherein R¹² is selected from the group consisting of: H, C₁₋₅alkyl optionally substituted with 1-3 halo groups, and benzyl optionally substituted with 1-3 substituents independently selected from halo, C₁₋₄alkyl and C₁₋₄alkoxy, and

R¹³ is H or C₁₋₄alkyl optionally substituted with 1-3 halo groups; and

R⁶ represents H;

or in the alternative, R⁵ and R⁶ are taken in combination and represent a ring of 4-7 members, said ring optionally containing one heteroatom selected from O, S and NR¹³.

2. The compound according to Claim 1 wherein X is halo.
3. The compound according to Claim 1 wherein X is -O-W-Z.
4. The compound according to Claim 3 wherein Z is selected from the group consisting of:
 - (1) C₁₋₁₁alkyl,
 - (2) C₃₋₁₁cycloalkyl or a benzofused analog thereof, and
 - (3) phenyl or naphthyl,

wherein groups (1) – (3) above are optionally substituted with 1-3 substituents independently selected from the group consisting of:

- (a) halo
- (b) nitro,

- (c) hydroxy,
- (d) C₁₋₄alkyl,
- (e) C₁₋₄alkoxy,
- (f) C₁₋₄alkylthio,
- (g) C₃₋₆cycloalkyl,
- (h) phenyl or naphthyl,
- (i) phenoxy,
- (j) benzyl and
- (k) benzyloxy.

- 5. The compound according to Claim 1 wherein R³ is methyl.
- 6. The compound according to Claim 1 wherein R² and each R⁴ are hydrogen.
- 7. The compound according to Claim 1 wherein R⁵ is selected from the group consisting of: C₁₋₆alkyl, phenyl and naphthyl.
- 8. The compound according to Claim 1 wherein:

X is halo or -O-W-Z;

W is a bond, -CH₂-, -C(O)- or -C(O)CH₂-;

Z is selected from the group consisting of:

- (1) C₁₋₆alkyl, optionally substituted with 1-3 halo groups,
- (2) C₃₋₁₁cycloalkyl or a benzofused analog thereof, and
- (3) phenyl or naphthyl, optionally substituted with 1-3 groups independently selected from halo or C₁₋₄alkyl,

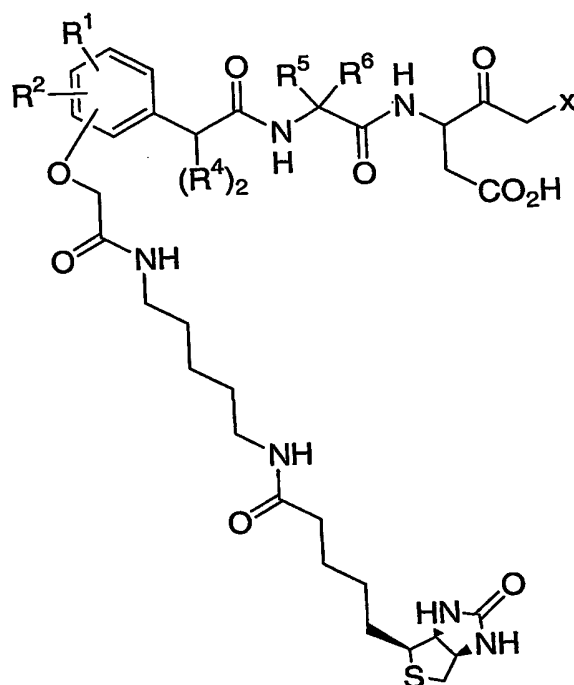
R³ is methyl, ethyl or phenyl;

R² and each R⁴ are hydrogen;

R⁵ is selected from the group consisting of: C₁-6alkyl, C₅-7cycloalkyl, phenyl and naphthyl;
and

R⁶ is hydrogen.

9. A compound of Formula II



II

or a salt, ester or hydrate thereof, wherein:

X is halo;

R¹ and R² are each independently selected from the group consisting of:

- (1) H,
- (2) halo,
- (3) hydroxy,

(4) nitro,

(5) cyano,

(6) C₁₋₁₀alkyl, C₃₋₁₀cycloalkyl, C₁₋₁₀alkoxy, -S(O)₀₋₂C₁₋₁₀alkyl or -NHC₁₋₁₀alkyl, each optionally substituted with 1-2 oxo or carboxy groups and further optionally substituted with 1-3 substituents independently selected from the group consisting of:

(a) halo,

(b) hydroxy

(c) cyano,

(d) C₁₋₄alkoxy,

(e) -NHR⁷, wherein R⁷ is independently H or C₁₋₅alkyl,

(f) -S(O)₀₋₂C₁₋₄alkyl, and

(g) HET², wherein HET² represents a 5- to 7-membered aromatic or non-aromatic ring containing 1-4 heteroatoms selected from O, S and NR⁸, wherein R⁸ is independently H or C₁₋₅alkyl, said HET² being optionally substituted with oxo and further optionally substituted with 1-2 substituents independently selected from halo and C₁₋₄alkyl, said C₁₋₄alkyl being optionally substituted with 1-3 halo groups,

(7) phenoxy or -S(O)₀₋₂phenyl,

(8) benzyloxy or -S(O)₀₋₂benzyl,

(9) benzoyl,

(10) phenyl or naphthyl,

(11) -O-HET² or -S-HET², said HET² being optionally substituted with oxo and further optionally substituted as defined below, and

(12) HET³, wherein HET³ is a 5- or 6-membered aromatic or non-aromatic ring, or a benzofused analog thereof, containing from 1 to 4 heteroatoms selected from O, S and N, said HET³ being optionally substituted with oxo and further optionally substituted as defined below,

groups (7) - (12) above are each optionally substituted with 1-2 substituents independently selected from the group consisting of: halo, cyano, C₁₋₄alkyl and C₁₋₄alkoxy, said C₁₋₄alkyl and C₁₋₄alkoxy being optionally substituted with 1-3 halo groups;

R³ is C₁₋₁₀alkyl, optionally substituted with 1-2 oxo or carboxy groups and further optionally substituted with 1-3 substituents independently selected from the group consisting of:

(a) halo,

- (b) hydroxy
- (c) cyano,
- (d) C₁₋₄alkoxy,
- (e) -NHR⁷, wherein R⁷ is independently H or C₁₋₅alkyl,
- (f) -S(O)₀₋₂C₁₋₄alkyl, and
- (g) HET², wherein HET² represents a 5- to 7-membered aromatic or

non-aromatic ring containing 1-4 heteroatoms selected from O, S and NR⁸, wherein R⁸ is independently H or C₁₋₅alkyl, said HET² being optionally substituted with oxo and further optionally substituted with 1-2 substituents independently selected from halo or C₁₋₄alkyl, said C₁₋₄alkyl being optionally substituted with 1-3 halo groups,

each R⁴ is independently selected from the group consisting of: H, halo, hydroxy, C₁₋₆alkyl and C₁₋₄alkoxy, said C₁₋₆alkyl and C₁₋₄alkoxy being optionally substituted with oxo and further optionally substituted with 1-3 halo groups; and

R⁵ is selected from the group consisting of: H, phenyl, naphthyl, C₁₋₆alkyl optionally substituted with OR¹² and 1-3 halo groups, and C₅₋₇ cycloalkyl optionally containing one heteroatom selected from O, S and NR¹³,

wherein R¹² is selected from the group consisting of: H, C₁₋₅alkyl optionally substituted with 1-3 halo groups, and benzyl optionally substituted with 1-3 substituents independently selected from halo, C₁₋₄alkyl and C₁₋₄alkoxy, and

R¹³ is H or C₁₋₄alkyl optionally substituted with 1-3 halo groups; and

R⁶ represents H;

or in the alternative, R⁵ and R⁶ are taken in combination and represent a ring of 4-7 members, said ring optionally containing one heteroatom selected from O, S and NR¹³.

10. The compound according to Claim 9 wherein:

R¹ is selected from the group consisting of:

- (1) halo,

(2) C₁₋₄alkyl or C₁₋₄alkoxy, each optionally substituted with oxo and 1-3 halo groups, and

(3) HET³, wherein HET³ is a 5- or 6-membered aromatic or non-aromatic ring, or a benzofused analog thereof, containing from 1 to 4 heteroatoms selected from O, S and N, and optionally substituted with 1-2 substituents independently selected from halo and C₁₋₄alkyl, said C₁₋₄alkyl being optionally substituted with 1-3 halo groups;

R² and each R⁴ are hydrogen;

R⁵ is selected from the group consisting of: C₁₋₆alkyl, phenyl and naphthyl; and

R⁶ is hydrogen.

11. The compound according to Claim 10 wherein HET³ is 1,2,4-oxadiazole, optionally substituted with C₁₋₄alkyl.

12. A method for detecting active caspase-3 in cells or tissues of a mammal comprising contacting said cells or tissues with a compound of Claim 1 and detecting active caspase-3.

13. A method for detecting active caspase-3 in cells or tissues of a mammal comprising contacting said cells or tissues with a compound of Claim 9 and detecting active caspase-3.

14. A method for determining the caspase-3 active site occupancy of a sample reversible caspase-3 inhibitor in an animal model of cellular injury comprising:

- 1) administering to said animal said sample reversible caspase-3 inhibitor;
- 2) euthanizing said animal and extracting said injured cells;
- 3) contacting said injured cells *ex vivo* with a compound according to Claim 1;
- 4) detecting the amount of said compound to determine the number of caspase-3 free active sites; and

5) comparing said number of caspase-3 free active sites to the total measure of active caspases to determine the caspase-3 active site occupancy.

15. A method for determining the caspase-3 active site occupancy of a sample reversible caspase-3 inhibitor in a cell culture comprising:

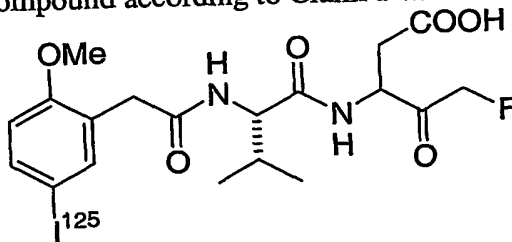
1) contacting said cell culture with a sample reversible caspase-3 inhibitor;
 2) contacting said cell culture with a compound according to Claim 1;
 3) detecting the amount of said compound to determine the number of caspase-3 free active sites; and

4) comparing said number of caspase-3 free active sites to the total measure of active caspases to determine the caspase-3 active site occupancy.

16. A kit for detecting active caspase-3 in cells or tissues of a mammal comprising a compound of Claim 1.

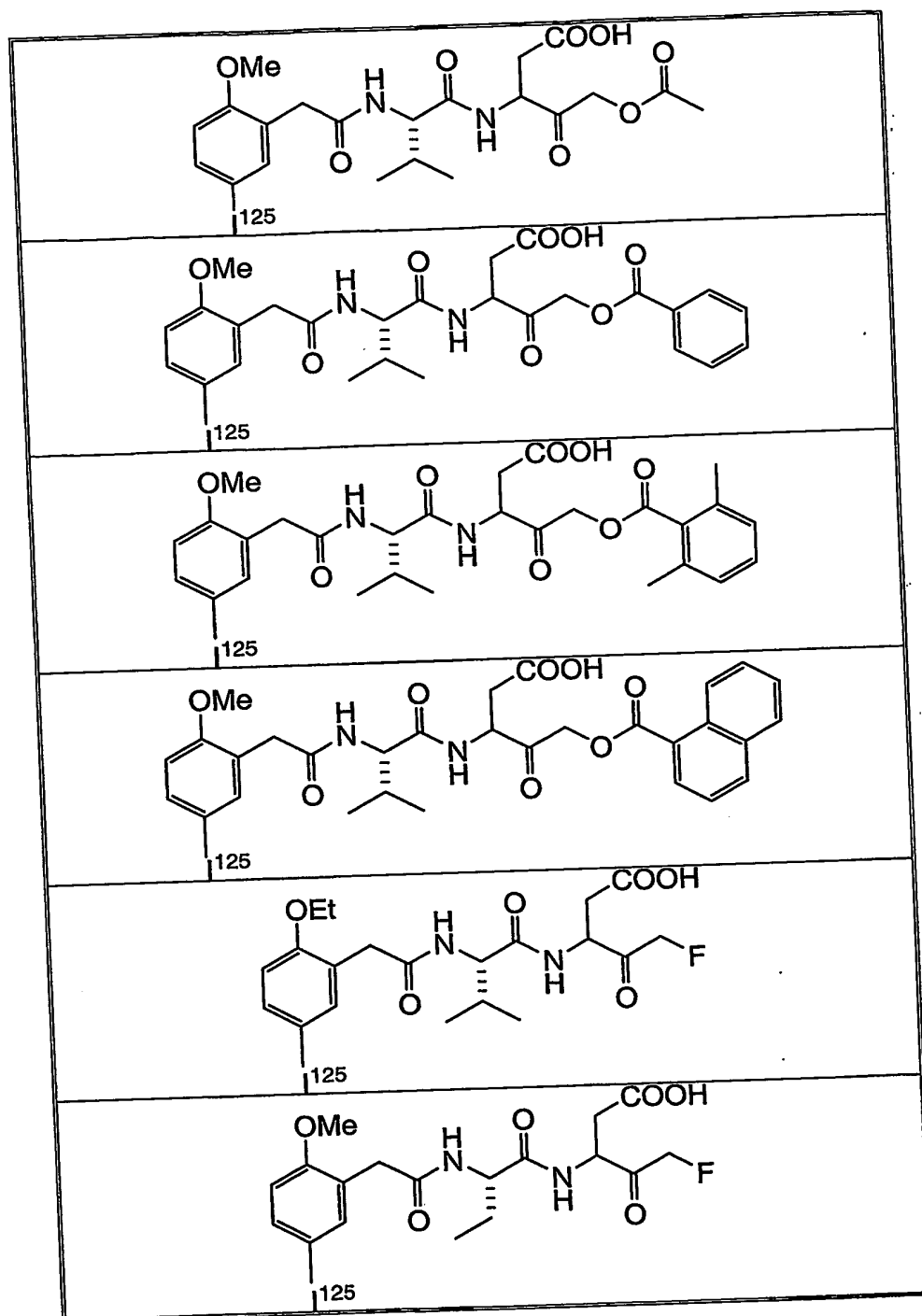
17. A kit for detecting active caspase-3 in cells or tissues of a mammal comprising a compound of Claim 9.

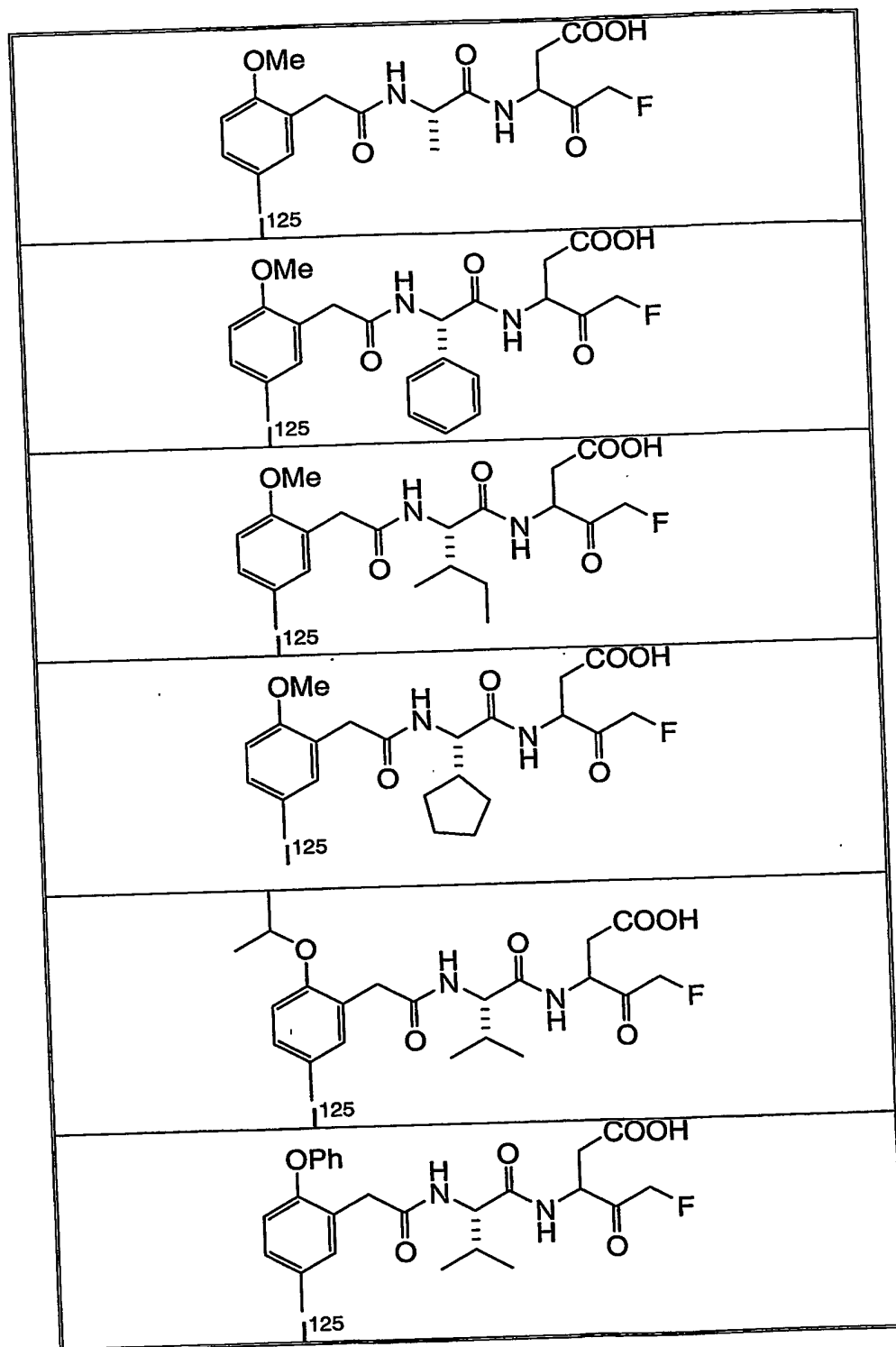
18. The compound according to Claim 1 which is

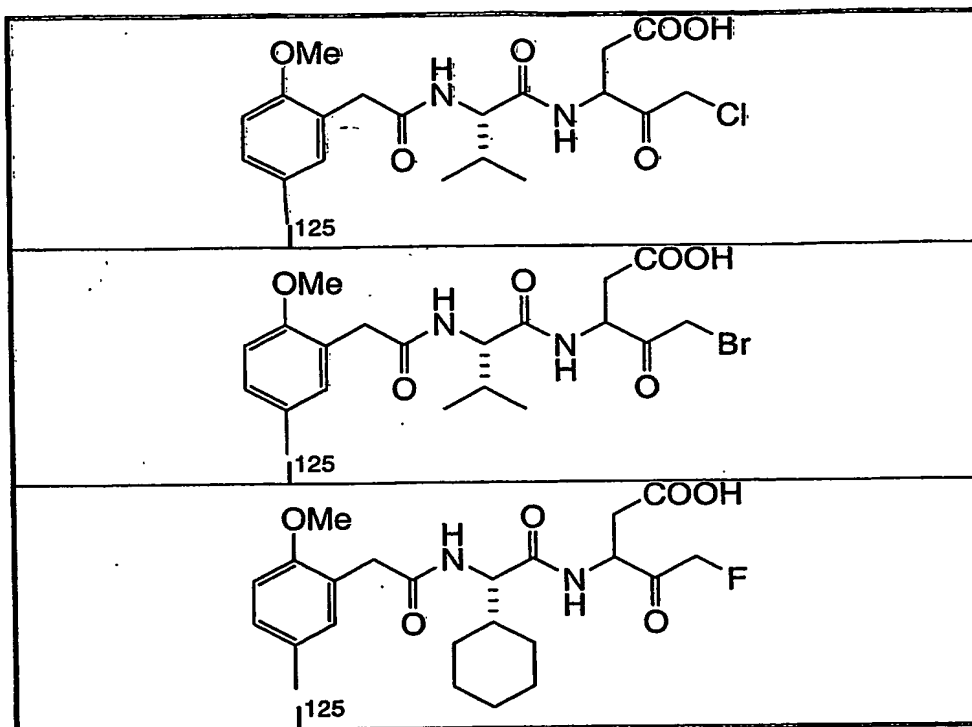


or a salt, ester or hydrate thereof.

19. A compound according to Claim 1 which is selected from the following table:







or a salt, ester or hydrate of any of the above.

20. A compound of any one of claims 1 to 11, 18 or 19 for use in detecting active caspase-3 in cells or tissues of a mammal.

21. A compound of any one of claims 1 to 11, 18 or 19 for use in determining the caspase-3 active site occupancy of a sample reversible caspase-3 inhibitor in an animal model of cellular injury.